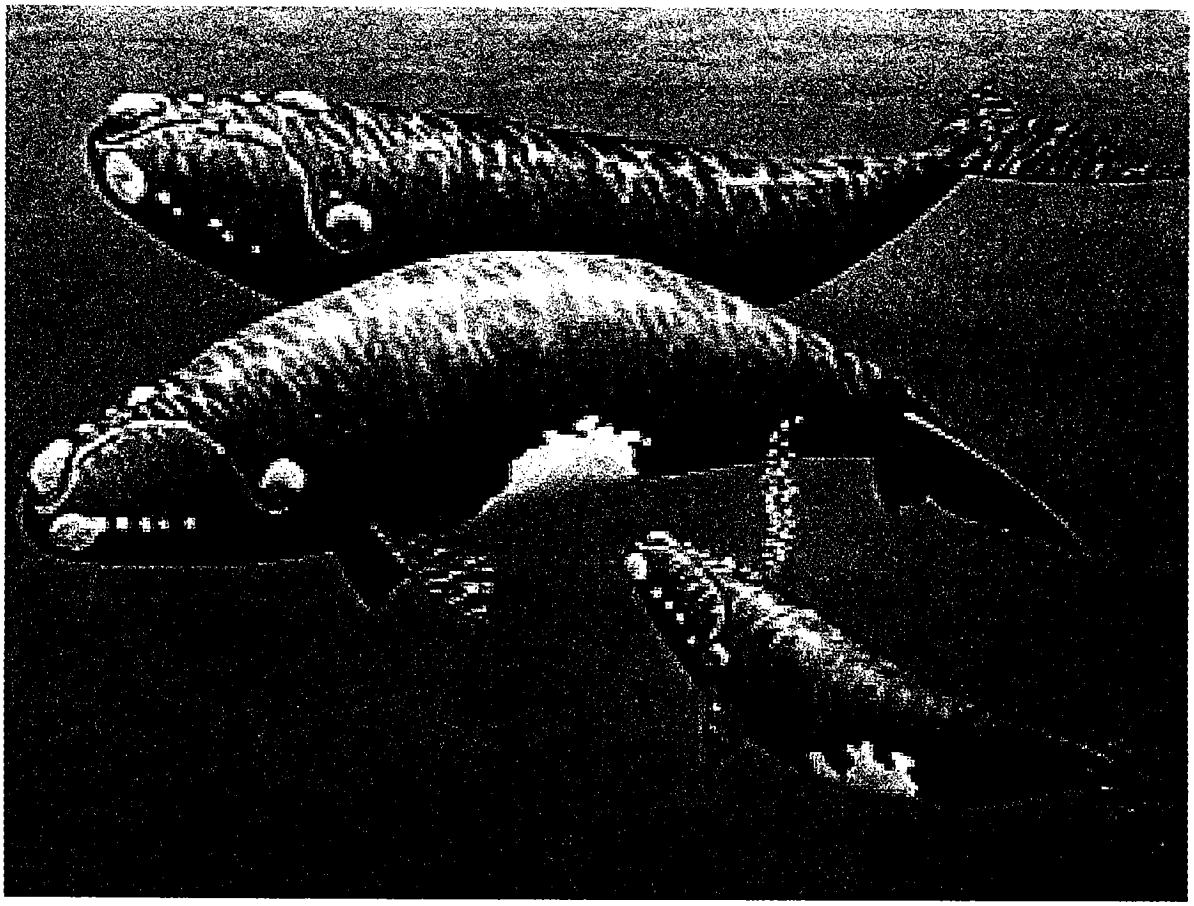
PETITION TO REVISE THE CRITICAL HABITAT DESIGNATION FOR THE NORTHERN RIGHT WHALE (EUBALAENA GLACIALIS) UNDER THE ENDANGERED SPECIES ACT



CENTER FOR BIOLOGICAL DIVERSITY, PETITIONER

OCTOBER 4, 2000

NOTICE OF PETITION

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Petitioner Center for Biological Diversity formally requests that the National Marine Fisheries Service ("NMFS") revise the critical habitat designation for the northern right whale (*Eubalaena glacialis*) under the federal Endangered Species Act.[1] This petition is filed under § 553(e) of the Administrative Procedure Act,[2] § 1533(b)(3)(D)(i) of the ESA, and 50 C.F.R. § 424.14(c). Because *E. glacialis* is a marine mammal listed under 50 C.F.R § 222.23(a), NMFS has jurisdiction over this petition. This petition sets in motion a specific administrative process as defined by 50 C.F.R. § 424.14(c), placing mandatory response requirements on NMFS.

The Center for Biological Diversity is a non-profit environmental organization dedicated to the protection of native species and their habitats in the Western Hemisphere. The Center for Biological Diversity submits this petition on its own behalf and on behalf of its members and staff, with an interest in protecting the right whale and the whale's habitat.

[1] 16 U.S.C. §§1531-1544 (1994) [hereinafter ESA].
[2] 5 U.S.C. §§551-559 (1994) [hereinafter APA].

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EXECUTIVE SUMMARY

This petition seeks to revise the designation of critical habitat for the northern right whale, *Eubalaena glacialis,* to include habitat for the whale's North Pacific population. Once abundant throughout the North Pacific, the North Pacific population of *E. glacialis* is now among the most endangered of all great whale stocks. Large-scale commercial whaling during the 19th century left a population so depleted that some observers believed that the population was effectively extinct. However, recent right whale sightings in the southeast Bering Sea indicate that the North Pacific population may recover if critical habitat protection is promptly provided.

The Final Recovery Plan for the Northern Right Whale was published in 1991. The plan called for the designation of critical habitat for the Atlantic population of *E. glacialis*, but because the Pacific population was so rare, the recovery plan team could not determine what habitat areas were critical to the Pacific population, and therefore did not recommend designating critical habitat in the Pacific. Nevertheless, the recovery team recommended that once areas essential to the conservation of Pacific right whales were identified, those areas should be designated as critical habitat and protected to the full extent of the law.

Over the past five years, recurrent right whale sightings along the middle shelf of the southeast Bering Sea indicate that an area essential to the conservation of the Pacific population has been discovered. Right whales have engaged in feeding and courtship behaviors in this area. The biological and physical characteristics of this area extend west and north from where the right whales have been sighted, indicating that there is ample habitat for right whale populations to grow. However, as noted in the Final Recovery Plan, this habitat must be protected as critical habitat for the right whale in order to protect the habitat from human encroachments and promote the recovery of the species.

Critical habitat is at the heart of the Endangered Species Act, which was enacted to protect endangered species and the ecosystems upon which they depend. Critical habitat is defined by the ESA as areas that may require special management considerations or protection and are essential for the survival and recovery of the species. The area that best meets this definition in the case of the North Pacific population is the middle shelf and inner front regions of the Bering Sea shelf.

Critical habitat provides important protections to listed species. Federal agencies must ensure that any action authorized, carried out, or funded by them will not destroy or adversely modify critical habitat, in addition to their general duty under the ESA to ensure that any action authorized, carried out, or funded will not jeopardize the continued existence of a listed species. Protection for the North Pacific right whale's critical habitat is particularly important because so little is known about this population's biology and natural history: it is crucial that the North Pacific population's known habitat be protected while additional research is conducted into the life history of this stock.

This petition reviews the taxonomy, biology, and natural history of the right whale, the threats faced by the species, the factors NMFS must consider in designating critical habitat, and delineates the right whale's North Pacific critical habitat.

I. INTRODUCTION

The northern right whale was once abundant throughout the Pacific and Atlantic Oceans. However, intensive commercial whaling during the 19th and 20th centuries decimated the species.[1] Prized for its oil and baleen plates—and preferred due to its slow swimming speed and its floating-carcass characteristic—commercial whalers severely depleted the Atlantic population by the late 1700's.[2] Commercial whaling in the Pacific Ocean began later, but was even more devastating. American vessels killed and landed over 15,000 northern right whales in the North Pacific during the 1840's, with Japanese and Soviet fleets killing additional individuals.[3]

Although commercial whaling continued into the 20th century, the numbers of *E. glacialis* in both oceans were so low that it was no longer a primary focus of commercial whaling.[4] Indeed, by 1935, the species was so near extinction that the League of Nations convinced most whaling nations to agree to stop hunting right whales.[5] However, because the Soviet Union and Japan refused to accept the whaling restrictions, the Pacific populations of the right whale continued to be legally harvested by these countries.[6] Not until 1949 with passage of the Convention for the International Regulation of Whaling did the Pacific population have international protection from hunting.[7] With the notable exception of illegal harvesting by Soviet whaling ships in the 1960's,[8] hunting has been responsible for the death of only a few individuals in the Pacific since the ban has been in place.

Today, the North Atlantic population is estimated to contain around 300 individuals.[9] However, due to the whale's low birth rate and high human induced mortality, the Atlantic population is predicted to go extinct within 200 years.[10] The North Pacific population has no accurate abundance estimate. Chances of recovery of the Pacific population appear bleak, and until recently, the lack of sightings in the Pacific led many to believe the population was effectively extinct.

However, recent sightings of right whales in the Bering Sea have brought with them new hope for the recovery of the North Pacific population. For the past five summers, between three and thirteen right whales have been observed near the middle shelf and the inner front of the southeast Bering Sea. The predictable habitation of these waters during the summer time, and

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[1] NATIONAL MARINE FISHERIES SERVICE, FINAL RECOVERY PLAN FOR THE NORTHERN RIGHT WHALE 1 (1991) [hereinafter FINAL RECOVERY PLAN].

[2] Simona L. Perry et al., *The Great Whales: History and Status of Six Species Listed as Endangered Under the U.S. Endangered Species Act of 1973*, 61(1) MARINE FISHERIES REVIEW 1, 16 (1999).

[3] James E. Scarff, *Historic and Present Distribution of the Right Whale (Eubalaena glacialis) in the Eastern North Pacific South of 50°N and East of 180°W, in* RIGHT WHALES: PAST AND PRESENT STATUS, 43, 45 (Robert L. Brownell, Jr. et al., eds., 1986).

[4] Robert L. Brownell et al., Conservation Status of North Pacific Right Whales 2 (1998) (unpublished doc. SC/M98/RW10, on file with the National Marine Fisheries Service Southwest Fisheries Science Center).

[5] *Id.*

[6] *Id.*

[7] *Id.*

[8] Alexey V. Yablokov, *Validity of Whaling Data*, NATURE January 13, 1994 at 108.

[9] Hal Caswell et al., *Declining Survival Probability Threatens the North Atlantic Right Whale*, 96 PROC. NATL. ACAD. SCI. 3308, 3308 (1999).

[10] *Id.* at 3312.

observed feeding and mating behavior while the individuals inhabit this area, warrant the designation of this area as critical habitat for the species.

Modifying the critical habitat designation to include the proposed portion of the Bering Sea will require NMFS to consider whether human activities will destroy or adversely modify the proposed habitat.[11] The destruction or adverse modification of critical habitat is defined as "a direct or indirect alteration that appreciably diminishes the value of critical habitat for *both the survival and recovery* of a listed species."[12] This means that NMFS must consider whether federal actions are impairing right whale recovery[13] in addition to considering whether federal actions will affect the continued survival of the right whale.

II. TAXONOMIC CLASSIFICATION OF THE NORTH PACIFIC RIGHT WHALE

There is some debate surrounding the taxonomic classification of right whales. Collectively, taxonomists have proposed organizing right whale populations into as few as one and as many as five distinct species. Currently there are two recognized species of right whale: the northern right whale, *Eubalaena glacialis,* and the southern right whale, *Eubalaena australis.*[14] However, the single morphological character that supports the distinction between *E. glacialis* and *E. australis* has been questioned.[15] Consequently, differences in migratory behavior, reproductive cycles, and the equatorial temperature gradient isolating northern populations from southern populations have been relied upon to uphold the species distinction.[16] Some authorities have nevertheless classified northern and southern right whales as one species *(E. glacialis)* with two subspecies (*E.g. glacialis* and *E.g. australis*).[17] Until general scientific agreement can be reached on the genetic, morphological, and behavioral differences in the different populations, the current classification will continue to be used.

Right whale populations in both the North Atlantic and the North Pacific Oceans are currently classified as *E. glacialis.*[18] However, a recent genetic and phylogenetic study indicates that classifying the North Pacific population as a separate species may be warranted.[19] Because the data set used for this study was small, and due to the large genetic variability that can occur within populations, this distinction has not yet been widely accepted. Until additional research can be conducted to substantiate the initial findings of this study, both North Atlantic and North Pacific right whales will remain classified as *E. glacialis.*

The Pacific population of *E. glacialis* is currently recognized by the International

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[11] *See* 16 U.S.C. § 1336(a)(2) (1994).
[12] 50 C.F.R. § 402.02 (1999) (emphasis added).
[13] "Recovery" is defined as "improvement in the status of listed species to the point at which listing is no longer appropriate under the criteria set out in section 4(a)(1) of the [ESA]." *Id.*
[14] FINAL RECOVERY PLAN, *supra* note 1, at 3.
[15] Hideo Omura et al., *Black Right Whales in the North Pacific*, 13 SCI. REP. WHALES RES. INST. 1, 44 (1969).
[16] Howard W. Braham and Dale W. Rice, *The Right Whale, Balaena glacialis*, 46(4) MARINE FISHERIES REV. 38 (1984).
[17] D.W. Rice, Marine Mammals of the World: Systematics and Distribution (1998).
[18] Perry et al., *supra* note 2, at 7.
[19] *See* H.C. Rosenbaum et al., Worldwide Genetic Differentiation of Right Whale Populations, (1997) (unpublished document available from Joint Institute for the Study of the Atmosphere and Ocean, University of Washington).

Whaling Committee ("IWC") as consisting of one contiguous stock.[20] This classification is primarily based on the historic range of *E. glacialis* in the Pacific, which included all waters north of 35° lattitude.[21] Sightings of *E. glacialis* in the mid-Pacific north of Hawaii have given support to the classification of the Pacific population as one stock, although the reliability of these sightings has been questioned.[22] However, some observers believe that two distinct Pacific populations exist, one in the Eastern and one in the Western North Pacific.[23] Biologists have been reluctant to confirm that two distinct stocks exist because the calving grounds and migration routes of Pacific *E. Glacialis* remain a mystery. Until this information is acquired, no conclusion can be reached concerning the distinction between eastern and western stocks in the Pacific.

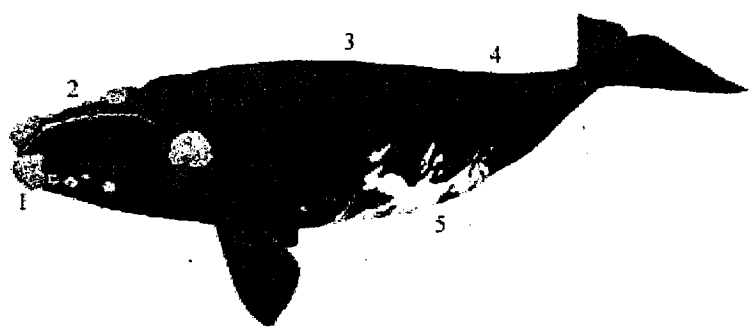
Table 1. Taxonomic classification of the northern right whale.

Kingdom	Phylum	Class	Order	Suborder	Family	Genus	Species
Animalia	Chordata	Mammalia	Cetacea	Mysticeti	Balaenidae	Eubalaena	glacialis

III. IDENTIFYING CHARACTERISTICS OF *E. GLACIALIS*

E.glacialis is a rotund, medium-sized baleen whale. Adults generally range in length between 45 and 55 feet and can weigh up to 70 tons. The northern right whale's distinctive features include a black coloration with variable white patches on the throat and belly, the absence of a dorsal fin, a large head comprising more than one-quarter of the body length, a narrow upper jaw, a strongly bowed lower jaw, and distinguishing callosities on the head.[24] In addition to being indicative of the species, callosities can be used with other marks to identify individual right whales.

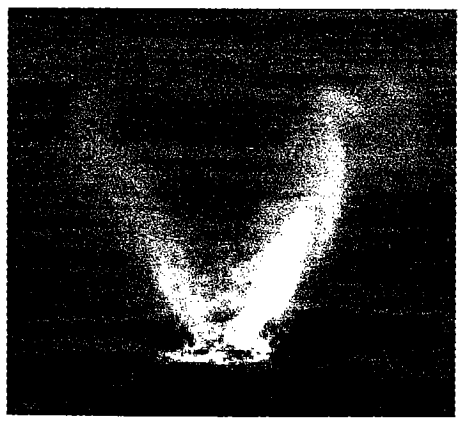
Figure 1. Some distinguishing characteristics of the northern right whale.
1. numerous callosities; 2. narrow upper and strongly bowed lower jaw;
3. lack of a dorsal fin; 4. dark coloration; and 5. variable white patches.



[20] Perry et al., *supra* note 2, at 8.
[21] Braham and Rice, *supra* note 16, at 40.
[22] Scarff, *supra* note 3, at 53.
[23] *Id.* at 57.
[24] FINAL RECOVERY PLAN, *supra* note 1, at 3.

Two rows of baleen plates descend from the whale's upper jaw. The plates are long and numerous; they can be more than nine feet in length and number 225 plates on each side of the jaw. The tail is broad, deeply notched, and all black with a smooth trailing edge. Two widely separated blowholes result in a V-shaped spout when viewed from the front or back of the whale.

Figure 2. The distinctive V-shaped spout of the right whale.



IV. NATURAL HISTORY OF THE PACIFIC POPULATION OF *E. GLACIALIS*

The right whale has been of great interest to seamen and scientists alike since its first encounters with humans, originally due to its excellent hunting and now due to its extreme rarity. Yet the biology and natural history of the right whale largely remains a mystery. The scientific inquiry that has been conducted has primarily focused on the northern Atlantic population and the southern right whale, *E. australis*: the paucity of right whales in the North Pacific has no doubt led researchers to focus on other populations. The summary below is an overview of what we currently know about the North Pacific population of *E. glacialis*.

A. Abundance and Population Trends

Data about the pre-exploitation population of Pacific *E. glacialis* is incomplete, confounding attempts to reliably estimate the pre-exploitation population size. Whaling records indicate that during the 19th century, pelagic whalers landed over 15,000 North Pacific right whales, and struck and lost an additional 4,000 right whales.[25] Therefore it is likely that the pre-exploitation size of the stock well exceeded 19,000 individuals.

Although whaling by Native Americans preceded the massive commercial exploitation of whaling stocks that occurred in the North Pacific during the 19th century, its impact on right whale populations appears to have been minimal.[26] Pelagic whaling by western whalers, however, decimated the right whale population in a short period of time. In 1835, the "Kodiak Grounds"—an area in the Gulf of Alaska that historically had a large population of right

[25] Scarff, *supra* note 3, at 45.
[26] *Id.* at 44.

whales—was discovered, and whaling began in earnest.[27] By 1850, over 9,000 right whales had been killed by commercial whalers.[28] As early as the 1870s, commentators were noting the relative rarity of Pacific right whales.[29] However, international protection wouldn't be enacted for another 80 years, and right whales continued to be legally harvested into the 20th century. Even after binding protection was finalized in 1949 with the passage of the Convention for the International Regulation of Whaling, right whales were still harvested, purportedly for scientific purposes. Japan and the Soviet Union collectively harvested 23 whales between 1955 and 1968 for scientific research.[30] In addition, it is now known that Soviet whalers illegally harvested Pacific *E. glacialis* in the 1960's.[31]

There are no reliable estimates of the current population size of the stock. The paucity of whale sightings have made it difficult to get statistically reliable estimates. The few estimates that do exist estimate the population in the order of a few hundred individuals.[32] Despite international protection, it appears that the population has made little progress towards recovery during the past 40 years.

However, recent sightings indicate that the population may be capable of recovery. For the past five summers, right whales have been sighted in the southeast Bering Sea. In July of 1996, Goddard and Rugh sighted three to four individuals in this area, one of which was possibly a sub-adult right whale.[33] In July of 1997, Tynan sighted four to five right whales in the southeastern Bering Sea in the middle shelf domain, south of the inner front, in water approximately 55 meters deep.[34] In July of 1998, Brownell and Perryman observed six right whales, all in the southeastern Bering Sea.[35] In July of 1999, five right whales were sighted in the same vicinity.[36] In July of 2000, Perryman sighted thirteen right whales in the southeastern Bering Sea.[37]

To put these sightings in perspective, the number of individual right whales sighted over the past five years is more than the number of confirmed right whale sightings in the eastern Pacific Ocean that occurred in the previous twenty years.[38] The recent sightings are all the more important because they show right whales repeatedly congregating in groups of more than two in one area for the first time in the Pacific Ocean in nearly twenty years.

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[27] *Id.* at 47.
[28] *Id.*
[29] *Id.* at 50.
[30] *Id.* at 51.
[31] Yablokov, *supra* note 8.
[32] Braham and Rice, *supra* note 16, at 43.
[33] *See* Pamela D. Goddard and David J. Rugh, *A Group of Right Whales Seen in the Bering Sea in July 1996*, 14(2) MARINE MAMMAL SCI. 344 (1998).
[34] *See* C. T. Tynan, Critical Habitat and Abundance Estimation of Right Whales in the Southeast Bering Sea (1998) (unpublished document SC50/CAWS18, available from the Joint Institute for the Study of the Atmosphere and Ocean, University of Washington).
[35] *See* Robert L. Brownell, Jr. and Wayne L. Perryman, Progress Report: Northern Right Whale Aerial Surveys (1998) (unpublished document available from NMFS Southwest Fisheries Science Center).
[36] *See* Wayne L. Perryman et al., Progress Report: Status and Conservation Plan Research and Implementation (1999) (unpublished document available from NMFS Southwest Fisheries Science Center).
[37] *See* Rick LeDuc et al., Progress Report for Bering Sea/Gulf of Alaska Large Whale Surveys (2000) (unpublished document available from National Marine Mammal Laboratory, Alaska Fisheries Science Center).
[38] Brownell et al., *supra* note 4, at 25-31.

Although the increase in recent sightings may be partially due to increased surveying effort, they bring with it a glimmer of hope for a population that was once considered effectively extinct. Furthermore, the regular sightings in the southeast Bering Sea indicate that this area is critical habitat for the Pacific population of *E. glacialis*.

B. Distribution and Migration

Historically, *E. glacialis* ranged across the entire North Pacific north of 35° North latitude, and occasionally occurred as far south as 20° North latitude.[39] They have been sighted north of the Bering Strait into the Chukchi Sea,[40] but avoid ice-covered polar waters. During the summer, *E. glacialis* occur in high-latitude feeding areas. The Gulf of Alaska, especially south of Kodiak Island, the Eastern Aleutian Islands, the southern Bering Sea, and the Okhotsk Sea have all been important summer habitats.[41]

The recent sightings noted above indicate a concentration of activity on the middle shelf and inner front of the southeast Bering Sea. This contrasts with the distribution of whales during the 1840's and 50's; sightings by whalers during those decades indicated that *E. glacialis* was inhabiting deeper basin waters near the edge of the continental shelf.[42] The shift to shallower waters—which appears to be a preferred habitat for the whales—may be due to the whaling ban on this species: the whales may feel less threatened in shallower waters now that the whaling ban has been in effect for nearly five decades.

The change in distribution of right whales compared to historic records may also indicate a change in productivity and prey densities in the Bering Sea. The distributions of all cetaceans are linked to the distribution of their prey. This is particularly true of *E. glacialis*, which appears to have a specialized feeding strategy requiring high densities of prey.[43]

Migration patterns of the Pacific *E. glacialis* are largely unknown. In general, a northward movement to high latitudes occurs in spring, and a corresponding southward trend occurs in autumn. However, right whales are found across a broad latitudinal range during both seasons, suggesting a staggered migration.[44] Braham and Rice suggest that the whales found summering in Alaskan waters may winter in pelagic waters of the east and central North Pacific,[45] while Scarff concluded that these whales migrated southwest, joining the whales that summered off the Kamchatka Peninsula at an undetermined location in the western North Pacific.[46] No conclusive evidence of the whale's migration routes have been found.

The wintering grounds of *E. glacialis* are uncertain. Coastal whaling records provide no

[39] Braham and Rice, *supra* note 16, at 39.
[40] Omura et al., *supra* note 15, at 28.
[41] Perry et al., *supra* note 2, at 9.
[42] Omura et al., *supra* note 15, at 25.
[43] Robert D. Kenney et al., *Estimation of Prey Densities Required by Western North Atlantic Right Whales*, 2(1) MARINE MAMMAL SCI. 1, 9 (1986).
[44] Scarff, *supra* note 3, at 56.
[45] Braham and Rice, *supra* note 16, at 40.
[46] Scarff, *supra* note 3, at 56-57.

evidence of wintering areas along the North American Pacific coast, although the Formosa Strait, Ryukyu Islands, the Yellow Sea, and the East China Seas in the Western Pacific have all had confirmed winter sightings in the past.[47] Right whales have been sighted as far south as Baja California during winter months,[48] but observations have been too few to establish any wintering habitat along the eastern Pacific.

C. Feeding and Prey Selection

In the North Pacific, right whales historically fed on zooplanktonic crustaceans, particularly on concentrations of the copepods *Calanus cristatus* and *Calanus plumchrus.*[49] However, Tynan suggests that since *C. cristatus* and *C. plumchrus* are primarily found in deeper waters, and that the recent whale sightings were all within the shallower waters of the continental shelf, the species composition of *E. glacialis*' diet may have shifted.[50]

Among baleen whales, right whales appear to have the most specialized feeding strategy. Studies conducted in the North Atlantic suggest that right whales require high densities of copepods concentrated in surface waters for effective feeding.[51] This strategy may be a result of the energetic requirements of right whales. Studies on North Atlantic right whales indicate that the feeding requirements of an adult whale are at least 4.07×10^5 Kcal per day.[52] These studies indicate that right whales must focus feeding efforts in areas with a higher-than-average concentration of prey in order to meet their energetic requirements. Because the density of prey in oceanic areas varies over time and through the seasons, this requires the right whale to have a large potential feeding range.

In the summer of 1997 an unusually large bloom of coccolithophores covered the southeastern Bering Sea.[53] The bloom changed the normal composition of the water, displacing the phytoplankton community. Right whales and other cetaceans were found feeding in this area, indicating that the coccolithophores were providing productive foraging for the right whale's prey species. However, the return of right whales the following three summers, when coccolithophore blooms were not evident, indicate that this area is a productive summer foraging area for the whales even under normal oceanic conditions.

D. Reproduction

There are no records of calving in the eastern North Pacific in the past 150 years.[54] The only sighting of a possible calf by Goddard and Rugh in 1996 was subsequently identified as

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[47] *See generally* Omura et al., *supra* note 15.

[48] *See* Diane Gendron et al., *North Pacific Right Whale (Eubalaena glacialis) Sighting South of Baja California*, 25(1) AQUATIC MAMMALS 31 (1999).

[49] Omura et al., *supra* note 15, at 32.

[50] Tynan, *supra*, note 34, at 3.

[51] Charles A. Mayo and Marilyn K. Marx, *Surface Foraging Behaviour of the North Atlantic Right Whale, Eubalaena glacialis, and Associated Zooplankton Characteristics*, 68 CAN. J.ZOOLOGY 2214, 2219 (1990).

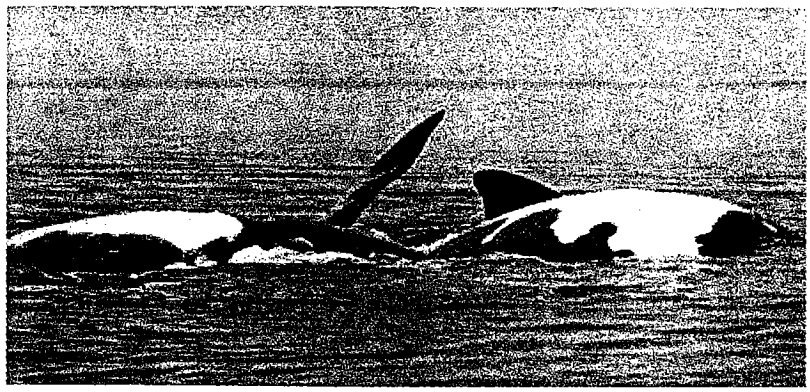
[52] Kenney et al., *supra* note 43, at 9.

[53] *See* American Geophysical Union, *Aquamarine Waters Recorded for First Time in Eastern Bering Sea*, 79(10) EOS 121 (1998).

[54] Goddard and Rugh, *supra* note 33, at 345.

either a sub-adult right whale or a small adult.[55] The location of the calving grounds for *E. glacialis* that summer in the eastern Pacific remains a mystery. Some courtship activity has been observed in the southeast Bering Sea, but it is unclear whether this activity led to mating.[56]

Figure 3. A rare photo of right whales mating.



Although more information has been gathered regarding the wintering grounds in the western North Pacific, the general paucity of records makes it impossible to definitively assess the location of breeding grounds.

V. KNOWN THREATS

A. Ship Strikes

Right whales are slow-swimming whales that spend much of their time near the surface of the water. This makes them susceptible to collisions with vessels; indeed, the primary cause of death for North Atlantic right whales is ship strikes. Although vessel-related mortality rates for the North Pacific are not known, the possibility of a strike in the southeast Bering Sea—home to one of the most active fishing grounds in the world—is high.

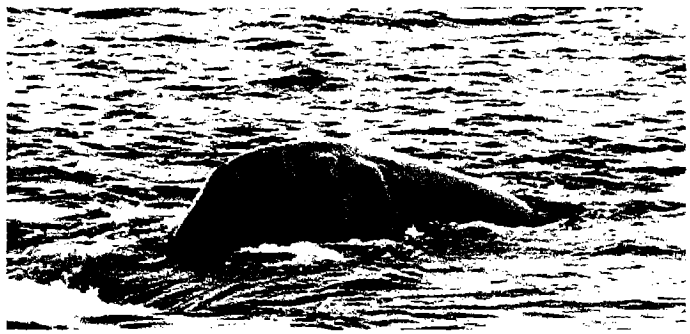
In addition to shipping and fishing vessels, whale-watching vessels have been implicated in both whale strikes and the harassment of individual whales. Whale watching vessels often attempt to approach whales as close as possible. This can distress whales, and in some instances has lead to collisions between whales and ships. However, the extent to which right whale habitat and behavior is affected by whale watching is currently not known.

Right whales have been observed moving rapidly away from approaching ships, yet they often seem oblivious to the dangers posed by ocean traffic.[57] There are two proposed explanations for this apparently contradictory behavior. The first is based on the hearing capabilities of the right whale. It is possible that the right whale hearing system is concentrated

[55] Telephone interview with Cynthia T. Tynan, Joint Institute for the Study of the Atmosphere and Ocean, University of Washington (September 9, 2000).
[56] Goddard and Rugh, *supra* note 33, at 346.
[57] *See* W. J. RICHARDSON ET AL., MARINE MAMMALS AND NOISE (1995).

in the low-frequency range. If so, high frequency ship noises (such as propeller cavitation noise that contains high energy levels), which are less affected by propagation effects and are more stable, would not be detected by right whales.[58]

Figure 4. A right whale with wounds on its peduncle from a collision with a ship propeller.



The second explanation is based on the acoustic attributes of ships and the ocean environment. It may be that the area directly in front of a traveling vessel is where ship noises are the quietest, and therefore seemingly the safest place for an unsuspecting right whale.[59] This will lead right whales to put themselves directly in the path of oncoming ships. This also indicates that 'pingers' mounted on the bows of vessels may not be effective because of sound propagation problems.[60] Because of this, vessels will be forced to take evasive maneuvers in order to avoid striking right whales.

In order to prevent ship strikes, several steps should be taken. First, speed limits within the critical habitat of right whales should be created and strictly enforced. Second, an early-warning system should be created to monitor the position of right whales, alerting vessels of their proximity to right whale populations. Third, regulations prohibiting ships from approaching within 500 meters of right whales should be created and enforced. Finally, right whale critical habitat should be closed to commercial shipping when right whales are present.

B. Entanglement in Fishing Gear

The magnitude and nature of entanglements in fishing gear are not completely known. However, in the North Atlantic, an estimated 57% of right whales bear scars and injuries indicative of fishing gear entanglement.[61] This high percentage of living whales with injuries caused by fishing gear indicates that entanglements are not always fatal. However, one fishery-related mortality was recently reported from Russian waters in the North Pacific.[62] Again, due to the highly productive fisheries located in and near the southeastern Bering Sea, it is very

[58] J. M. Terhune & W.C. Verboom, *Right Whales and Ship Noises,* 15(1) MARINE MAMMAL SCI. 256, 257 (1999).
[59] *Id.*
[60] *Id.*
[61] Scott D. Kraus, *Rates and Potential Causes of Mortality in North Atlantic Right Whales (Eubalaena glacialis)*, 6(4) MARINE MAMMAL SCI. 278, 282 (1990)
[62] *See* S. I. Kornev, *A Note on the Death of a Right Whale (Eubalaena glacialis) Off Cape Lopatka (Kachatka), in* GILLNETS AND CETACEANS 443 (Int'l Whaling Comm'n ed., 1994).

probable that right whale entanglements will become more frequent as the sightings of right whales in this area increase. Modifications of fishing gear to make them whale-safe, and time/area fishing closures will be required to eliminate the risks posed by fishing gear.

Figure 5. A North Pacific right whale killed by entanglement with fishing gear.

C. Destruction and/or Modification of Habitat

Development and destruction of right whale habitat is an ongoing threat to the species. The following summary outlines several threats to right whale habitat in the Pacific Ocean.

1. Oil and gas development

The Pacific population of *E. glacialis* is at risk to any habitat modifications caused by oil and gas development along the continental shelf of Alaska. In 1974, President Nixon established the federal Outer Continental Shelf ("OCS") program despite warnings from the Council on Environmental Quality that inadequate knowledge of environmental consequences existed at that time.[63] The entire offshore region of Alaska, with two exceptions,[64] is now open to oil and gas leasing. The State of Alaska has already leased 32 million acres for oil and gas development, both onshore and offshore.

Offshore oil and gas exploration in the Bering Sea and in eastern North Pacific waters has occurred in the past. Industry interest in further exploration has been contingent on market prices for oil as well as the development of extraction technologies; as the price for oil continues to rise there will be greater incentive to exploit reserves along coastal Alaska. Further exploration activities could create a catastrophic event in the life history of the right whale: as a surface feeding species, an oil spill could critically doom the already rare species to extinction. Oil spills create tar balls that appear in the late stages of an oil spill.[65] Broken off baleen filaments coated with oil and tarballs could be ingested and cause blockage in the stomach of a right whale.[66] Because this effect would likely be fatal, and because the tar can persist in the environment for upwards of four years, an oil spill has the potential to decimate the remaining

[63] *See generally* PAMELA A. MILLER, THE REACH OF OIL IN THE ARCTIC, (1997).
[64] The two exceptions are Kachemak Bay State Wilderness Park and fishing grounds in Bristol Bay.
[65] *See generally* NATIONAL MARINE FISHERIES SERVICE, BIOLOGICAL OPINION FOR PROPOSED CONSTRUCTION AND OPERATION OF THE NORTHSTAR OIL AND GAS PROJECT, (1999).
[66] *Id.*

population.

Baleen whales are also subject to the fouling of their baleen from oil. One laboratory study found that baleen filtering efficiency was reduced 5-10% by contact with Prudhoe Bay oil, and that the loss of efficiency lingered for approximately 30 days.[67] Clearly, contact with oil during or prior to an important feeding time could have a serious impact on a whale's ability to meet its nutritional requirements.

Additional adverse effects of an oil spill include skin contact, eye irritation, respiratory distress from hydrocarbon vapors, the contamination or elimination of food sources, and displacement from feeding areas.[68]

2. Disturbance due to industrial noise

Right whales, like other marine mammals, rely on acoustic stimuli for a variety of behaviors, including communicating with other right whales. Man-made noises can alter the whales' ability to perceive and understand the songs of other whales. The effect of man-made noise on right whales must be assessed relative to the naturally occurring background noise level in the ocean.

There is a lack of direct information on the hearing capabilities of right whales. Audiograms are not available. Indirect evidence suggests that the hearing abilities of baleen whales are particularly acute at frequencies below 1 kHz.[69] Southern right whale calls range from 0.03 to 2.2 kHz.[70]

Assessing the effect of industrial noise on right whales is complex. First, a source will have a different effect depending on how far away the whale is when the noise is encountered. Second, the effect of that noise on the whale depends on received sound level and frequency, whether the noise is pulsed or continuous, any tolerance or habituation experienced by the whale, the activity the whale is engaged in at the time the sound is encountered, and other factors.[71] Finally, to assess and analyze the effect of the noise on the whale requires a mastery of many disciplines including physical acoustics, anatomy and physiology, bioacoustics, psychoacoustics, and behavioral ecology. Since very little is known about vital factors such as the right whale's auditory processes and whale calls, making precise predictions on the effect of increases in ocean noise can be difficult.

Despite this complexity, it is clear that industrial noise may affect right whales in three major ways: avoidance, masking, and temporary or permanent hearing impairment. Avoidance occurs when industrial noise causes whales to respond by changing their normal behavior and moving away from the noise, either temporarily or more permanently. Initial research indicates that right whales exhibit different avoidance behaviors depending upon what activity they are

[67] *Id.*
[68] *Id.*
[69] John W. Richardson and Charles I. Malme, *Man-Made Noise and Behavioral Responses, in* THE BOWHEAD WHALE 631, 664 (J. J. Burns et al., eds.) (1993).
[70] Richardson et al., *supra* note 57.
[71] Richardson and Malme, *supra* note 69, at 665.

engaged in when the noise levels are heard.[72] Masking occurs when industrial noise raises background noise levels and interferes with detection of sounds from other whales or from natural sources. Temporary or permanent hearing impairment may be sustained from particularly intense noises.

In addition, the cumulative impacts of the various sources of noise are of special concern to right whales. There may be a point beyond which right whale behavior may be permanently altered or auditory organs permanently damaged. It is possible that right whales are already suffering extreme masking effects that interfere with communication, and/or temporary or permanent hearing loss.

3. Dredging and trawling activities

Because of their low population numbers, their habit of using coastal waters, and apparent low reproduction, right whales are likely the most vulnerable of all the great whales to habitat modification and destruction.[73] Dredging activities, including the dredging of shipping lanes and port areas, can have a significant impact on their habitat since it directly modifies and destroys areas that right whales might otherwise occupy. The modification occurs through both the excavation and dumping of sediments on the ocean floor.

Intensive trawling raises concerns about the possible side effects on ecosystem structure and dynamics. Two major issues are raised: the effects of bottom disturbance and the effects of bycatch mortality. Bottom disturbance has the potential to alter the benthic invertebrate community, which itself directly or indirectly provides the prey for many species. Important bottom habitats, such as biogenic or physical structures, may also be affected by trawling. Bottom disturbance can also alter geochemical fluxes of nutrients and materials from the sediments to the water column, thereby influencing water column production.

Bottom trawling also creates sediment excavation and resuspension. This physical disturbance of the seabed can enhance the turbidity of the overlying water column, facilitate erosion and transport of fine sediments, and alter rates of important biogeochemical processes, such as nutrient releases. Furthermore, whenever buried pollutants, such as heavy metals or organic contaminants are concentrated in the upper sediments of the seafloor, trawling could act to remobilize those contaminants and re-inject them into food chains. All of these effects can result in a reduction the production of right whale food sources.

4. Disturbance due to other discharges

Persistent organic compounds, heavy metals, and radioisotopes are major anthropogenic inputs from human industrialization that flow into right whale habitat. Right whales are particularly vulnerable to these contaminants: as a long-lived and slow growing species, they are capable of accumulating pollutants in their fatty tissues over time. However, there is currently no scientific evidence documenting the effects of these accumulated pollutants on right whales.

[72] William A. Watkins, *Whale Reactions to Human Activities in Cape Cod Waters*, 2(4) MARINE MAMMAL SCI. 251, 259 (1986).

[73] Braham and Rice, *supra* note 16, at 44.

Much more research is required to understand the full significance of these pollutants on whales and their critical habitat.

D. Risks of Rarity

Although no accurate population estimate exists for the Pacific population of *E. glacialis*, it is clear that they are quite rare. The low number of individuals within the population makes *E. glacialis* particularly susceptible to stochastic perturbations. There are four types of stochastic perturbations that small populations may be subject: demographic stochasticity, environmental stochasticity, genetic stochasticity, and natural catastrophes.[74]

Demographic stochasticity refers to accidental variations in birth rate, death rate, and the ratio of the sexes. Environmental stochasticity refers to fluctuations in weather, in food supply, and in the population levels of predators, competitors, parasites, and disease organisms that may affect the right whale population. Genetic stochasticity refers to the loss of specific alleles through the processes of genetic drift, and the increased expression of the genetic load of the population. All of these stochastic effects create survival risks for populations. Indeed, these stochastic factors, combined with the effects of natural catastrophes, can interact in a dire feedback cycle by which a small population spirals to extinction.

In general, when the effective population of a species falls below 500, the population faces an overall net-loss of genetic variability through the process of genetic drift. In populations below this size, the gains of genetic diversity brought on through mutation are outpaced by the loss brought on by genetic drift. As the population continues to decline, the rate of loss tends to increase, because smaller populations have smaller rates of mutation.[75] Overall, this effect leads to a loss of long-term genetic adaptability within the population.

Further genetic risks occur when a population declines to 50 individuals. At this point, the population becomes susceptible to inbreeding depression, i.e., the increased expression of deleterious alleles.[76] For populations with a large genetic load,[77] inbreeding can be particularly devastating. However, a population that historically has low population numbers will likely have a low genetic load (otherwise the relatively small population would not have survived over time), whereas a population that had historically large numbers, and therefore could harbor a larger genetic load, will be extremely vulnerable to inbreeding depression, since the large genetic load may be expressed in a proportionately higher number of the individuals within the population.

Although there is no reliable population estimate for the Pacific population of *E. glacialis*, the population is certainly below 500 effective individuals, and may be below 50. This indicates that the population may already be losing genetic variation over the long-term through the process of genetic drift, and may also be affected by inbreeding depression that is limiting the ability of the species to breed successfully. Clearly, this is a population that is in trouble.

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[74] *See* Mark L. Shaffer, Determining Minimum Viable Population Sizes: A Case Study of the Grizzly Bear (Ursus arctos L.), (1978) (unpublished Ph.D. dissertation, Duke University).

[75] *See* Ian Robert Franklin, *Evolutionary Change in Small Populations, in* CONSERVATION BIOLOGY: AN EVOLUTIONARY-ECOLOGICAL PERSPECTIVE (Michael E. Soulé & Bruce A. Wilcox, eds.) (1980).

[76] *Id.*

[77] "Genetic load" means the burden of potentially harmful recessive alleles that a population carries.

However, this does not mean that the extinction of this population is inevitable. The generalized rule, known as the 50/500 rule, is incomplete and simplistic. The risk factors affecting the right whale's continued existence interact in a complex, multidimensional, and context-specific way, which cannot be reflected accurately in the generalized 50/500 rule. For example, because it is a huge-bodied, long-lived mammal, the right whale is relatively more resistant to demographic stochasticity than other species, while it may be more vulnerable to the effects of inbreeding due to its rapid decline in numbers caused by extensive hunting.

The FINAL RECOVERY PLAN suggests a figure of 7,000 individuals as the recovery point for *E. glacialis* in each ocean. This number is the best estimate of the 60th percentile of the pre-exploitation numbers of the right whale in the Atlantic. Because large mammals generally reach their highest rates of net growth when they are at 60% of their carrying capacity,[78] the recovery team viewed this number as a critical turning point in the recovery of the whale. However, the team did not indicate the viability of the current population. In order to more accurately understand how these risks affect the long-term survival of the Pacific population, a population viability analysis will have to be done.

The apparent lack of recovery of *E. glacialis* may in part be due to the effects of rarity. Some of these effects have been compounded by human activities. For example, illegal Soviet whaling in the Okhotsk Sea and around the Kuril Islands killed right whales in the 1960s.[79] In addition, thirteen right whales were taken under special scientific research permits during the 50's and 60's by a team of Japanese researchers. Five of the whales taken were females, two of which were pregnant.[80] The effects of these takes on an already small population may have delayed the recovery of the species, and threaten to preclude the possibility of recovery all together.

VI. PACIFIC E. GLACIALIS NEEDS CRITICAL HABITAT DESIGNATED

A. The Right Whale Recovery Plan Calls for North Pacific Critical Habitat Designation

The final recovery plan for the northern right whale did not recommend any area in the North Pacific as critical habitat for *E. glacialis*, because at the time the Pacific population was so depleted than no reliable determination could be made about the wintering or summering grounds of the whale, nor could migration routes be identified. However, objective two of the recovery plan for the North Pacific population called for identifying and protecting the habitats essential to the survival and recovery of the North Pacific right whale.[81]

After the past five summers, it is apparent that right whales are returning to the same area in the Bering Sea to feed. The identification and protection of this area is consistent with the recommendations made in the recovery plan nearly a decade ago. The recovery plan further recommends that areas with similar characteristics as those where right whales are found should

[78] C. W. FOWLER T. A. SMITH, EDS., DYNAMICS OF LARGE MAMMAL POPULATIONS (1981).
[79] Yablokov, *supra* note 8.
[80] Omura et al., *supra* note 15, at 1.
[81] FINAL RECOVERY PLAN, *supra* note 1, at 51.

be searched and protected as needed. Thus, the recovery plan recommends protecting those areas that are both currently and potentially inhabited by right whales.

B. Critical Habitat is Beneficial to Listed Species

Critical habitat is defined by Section 3 of the ESA as:

> (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 1533 of this title, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and
>
> (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 1533 of this title, upon a determination by the Secretary that such areas are essential for the conservation of the species.

16 U.S.C. §1532(5).

The designation and protection of critical habitat is one of the primary ways in which the fundamental purpose of the ESA, "to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved," is achieved.[82]

The designation of critical habitat provides listed species with additional protections under Section 7 of the ESA. The Section 7 consultation requirements provide that no action authorized, funded, or carried out by any federal agency will "jeopardize the continued existence of any endangered species or threatened species *or result in the destruction or adverse modification of [critical habitat].*"[83] "Destruction or adverse modification" is further defined in the implementing regulations as an "alteration that appreciably diminishes the value of critical habitat for both the survival and recovery of a listed species."[84] This prohibition is in addition to the prohibition against actions which "jeopardize the continued existence of" a species.[85]

Critical habitat designation offers an added layer of protection to ensure that a listed species' habitat—the loss of which is widely recognized to be the primary reason for most species' decline—will not be harmed. Without critical habitat designation, a listed species' protection under Section 7 of the ESA is limited to avoiding "jeopardy" to the species in its occupied habitat, without separate consideration of the potential for "destruction or adverse modification" of habitat or suitable unoccupied habitat which may be essential to the species' recovery. The U.S. Fish and Wildlife Service nicely summarized this distinction in the final rule designating critical habitat for the northern spotted owl:

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[82] 16 U.S.C. §1536(a)(2) (1994).
[83] 16 U.S.C. §1536(a)(2) (1994) (emphasis added).
[84] 50 C.F.R. §402.02 (1999).
[85] "Jeopardize the continued existence of" is defined as "to reduce appreciably the likelihood of both the survival and recovery of a species by reducing the reproduction, numbers, or distribution of that species." 50 C.F.R. § 402.02.

> The Act's definition of critical habitat indicates that the purpose of critical habitat is to contribute to a species' conservation, which definition equates to recovery. Section 7 prohibitions against the destruction or adverse modification of critical habitat apply to actions that would impair survival and recovery of the listed species, thus providing a regulatory means of ensuring that Federal actions within critical habitat are considered in relation to the goals and recommendations of a recovery plan. As a result of the link between critical habitat and recovery, the prohibition against destruction or adverse modification of the critical habitat would provide for the protection of the critical habitat's ability to contribute fully to a species' recovery. *Thus, the adverse modification standard may be reached closer to the recovery end of the survival continuum, whereas, the jeopardy standard traditionally has been applied nearer to the extinction end of the continuum.*[86]

This added protection would be implemented through the issuance of a biological opinion under 16 U.S.C. §1536(b)(3)(A), which must suggest reasonable and prudent alternatives by which a finding of jeopardy or adverse modification may be avoided.

Critical habitat designation also protects species by helping to define the meaning of "harm" under Section 9 of the ESA, which prohibits unlawful "take" of listed species, including harming the species through habitat degradation. Although "take" through habitat degradation is not expressly limited to harm to "critical habitat," it is practically much easier to demonstrate the significance of the impact to a species' habitat where that habitat has already been deemed "essential," or "critical," to the species' continued survival.[87]

Critical habitat also helps species by providing for agency accountability through the citizen suit provision of the ESA. The citizen suit provision permits members of the public to seek judicial review of the agency's compliance with its mandatory statutory duty to consider the habitat needs of imperiled species. Also, the designation of critical habitat provides valuable information for the implementation of recovery plans.

Additional benefits of critical habitat were described by NMFS in the Final Rule designating critical habitat for the Atlantic population of the northern right whale:

> A designation of critical habitat provides a clearer indication to Federal agencies as to when consultation under section 7 is required, particularly in cases where the action would not result in direct mortality or injury to individuals of a listed species....The critical habitat designation, describing the essential features of the habitat, also assists in determining which activities conducted outside the designated area are subject to section 7....For example, disposal of waste material in water adjacent to a critical habitat area may affect an essential feature of the designated habitat (water quality) and would be subject to the provisions of section 7....

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[86] 57 Fed. Reg. 1796 at 1822 (emphasis added).

[87] *See Palila v. Hawaii Department of Land and Natural Resources*, 852 F. 2d 1106 (9th Cir. 1988).

58 Fed. Reg. 29186 at 29187.

NMFS goes on to state that critical habitat also assists federal agencies in planning future actions because critical habitat establishes in advance those areas that will be given special consideration in section 7 consultations.[88] The designation allows conflicts between development and listed species to be identified and avoided early in the planning process.[89] NMFS also states that critical habitat provides a benefit to species by focusing federal, state, and private conservation and management efforts in areas designated critical habitat.[90] Recovery efforts can then address special considerations needed in critical habitat areas, including conservation regulations to restrict private as well as federal activities.[91] Finally, NMFS points out that there may be other federal, state, or local laws that provide special protection for areas designated as critical habitat.

V. PROPOSED AMENDMENT TO THE CRITICAL HABITAT DESIGNATION

The area proposed for critical habitat designation is the middle shelf and inner front regions of the southeast Bering Sea. This area is essential to the survival and recovery of the right whale for the following reasons: (1) all recent sightings of Pacific *E. glacialis* have been concentrated in this area during the summer, (2) the vast majority of threats to the survival and recovery of the right occur in this area, and (3) feeding and sexual behavior have been observed in this area. The factors that NMFS must consider when designating critical habitat are discussed in more detail below with reference to the proposed area.

A. Geographic Area

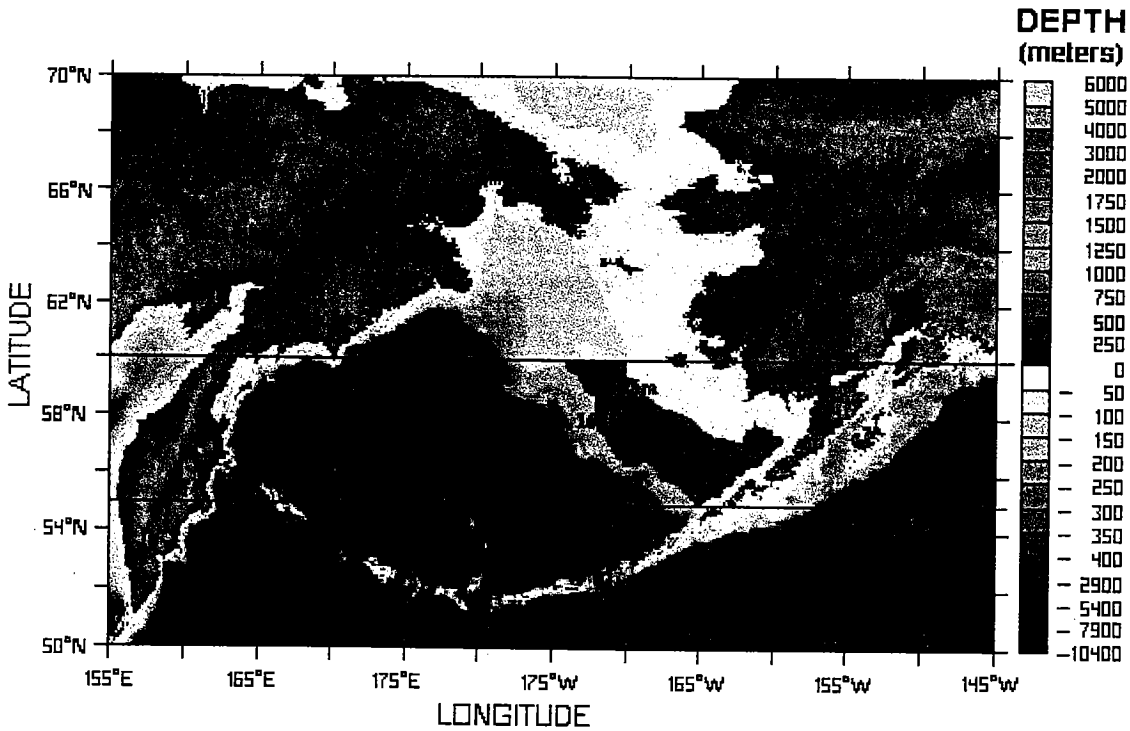
The Bering Sea shelf is divided by two frontal structures into three domains. Particular water properties, water column structure, and plankton dynamics characterize each domain. Water over the middle shelf (depths of 50-100 meters) usually has two well-mixed layers: the upper layer, resulting from the annual melt of sea ice and/or solar heating, and the lower layer, which remains cold and rich in nutrients essential for phytoplankton growth. Separating the domains is the inner front, which extends for over 1,000 kilometers around the shelf. Circulation over the shelf is sluggish and current speeds are on the order of a few cm^{sec-1}. The dynamics of this inner front likely provide nitrogenous nutrients for the prolonged primary and secondary production that typifies this zone.[92]

The recent right whale sightings have occurred between 162° and 165° west longitude, and between 56° and 58° north latitude. These coordinates correspond with a portion of the middle shelf domain habitat of the Southeast Bering Sea, including the inner front. The middle shelf domain habitat continues northwest from this area, following the 50 meter and 100 meter isobars. At approximately 60° north latitude, the characteristics of the habitat along the middle

[88] *Id.*
[89] *Id.*
[90] *Id.*
[91] *Id.*
[92] American Geophysical Union, *supra* note 53, at 121.

shelf domain change due to the increasing altitude.[93] The entire area between the 45 meter and 100 meter isobars, bounded by 55° north and 60° north latitudes is proposed as critical habitat for the Pacific population of *E. glacialis*.

Figure 6. Proposed critical habitat for the Pacific *E. glacialis*.
Proposed habitat in red.



The proposed critical habitat includes areas that may currently be uninhabited by right whales. However, the entire area has similar biological and physical characteristics, and can sustain similar populations of prey species. Since right whale distribution is driven in part by the distribution of their prey, it is highly likely that the right whales move throughout this area during the summer feeding season as the density of prey species shift.

The proposed habitat area is a small portion of the historic range of the North Pacific Right Whale. Before commercial whaling decimated the population, right whales were known to range across the entire North Pacific. The limited area proposed as critical habitat is thus only a small fraction of the total area this species is capable of occupying.

Under 50 CFR 424.12(e), critical habitat areas outside the geographical area presently occupied by right whales is to be designated only when a designation limited to its present range is inadequate to ensure the conservation of the species. Because right whale distribution is prey dependent, a designation limited to the area the right whale currently occupies would be inadequate to conserve the Pacific population. Furthermore, the lack of knowledge about right

[93] National Marine Fisheries Service, *Habitats of the Bering Sea*, (visited September 20, 2000) http://www.pmel.noaa.gov/bering/pages/bphysdom.html.

whale migrations patterns and seasonal movement patterns also indicates that a critical habitat designation limited to the area whales are known to occupy during July would be inadequate to ensure the conservation of the species.

B. The Designation of Critical Habitat is Both Prudent and Determinable

Under 50 CFR 424.12, critical habitat can only be designated if the designation is both "prudent" and "determinable." A designation is not prudent when one or both of the following situations exist:

(i) The species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat to the species, or

(ii) Such designation of critical habitat would not be beneficial to the species.

50 CFR 424.12(a)(1). A designation is not determinable when one or both of the following exist:

(i) Information sufficient to perform required analyses of the impacts of the designation is lacking, or

(ii) The biological needs of the species are not sufficiently well known to permit identification of an area as critical habitat.

50 CFR 424.12(a)(2).

1. The designation of critical habitat for the Pacific population of *E. glacialis* is prudent

The designation of critical habitat for the Pacific population of *E. glacialis* is prudent, because neither of the "not prudent" scenarios specified under 50 CFR 424.12(a)(1) apply. Pacific *E. glacialis* has been protected from hunting and other forms of 'take' since 1949. The last known willful violation of the ban occurred over forty years ago.[94] There are no known instances of taking, vandalism, collection, or trade in the right whale, and all other threats to the species are either indirectly or incidentally harming right whales. Thus, the designation of critical habitat would not increase the risk of any threat to the species.

Furthermore, the designation of critical habitat will in fact be beneficial to the Pacific population of the right whale. If critical habitat designation provides any benefits, then a prudent finding is warranted.[95] Critical habitat designation for the right whale more than meets this standard. First, designating the proposed area as critical habitat will trigger the protective provisions of the ESA regardless of whether the habitat is presently occupied by the right whale. For example, when the right whales migrate south for the winter, the protective provisions will remain in place in the Bering Sea, thus insuring that their feeding grounds will remain protected throughout the year. Second, the critical habitat designation will increase the degree to which Federal agencies fulfill their responsibilities under section 7(a)(1) of the ESA. Furthermore, the designation will provide some educational and informational benefits to the public at large.

[94] Yablokov, *supra* note 8.

[95] 65 Fed. Reg. 6114 at 6117 (February 8, 2000).

2. The critical habitat designation is determinable

The designation is also determinable, because there is sufficient information about the biology of the right whale to determine the proposed area as critical. As noted above, little is known about the biology and natural history of the right whale. However, scientists have determined what the feeding requirements are for right whales, and have also determined what their major food sources are. Furthermore, the data collected the past five years of right whale surveys gives a clear indication of where right whales are during their summer feeding times, and what behaviors they engage in while they occupy this area. This information alone is sufficient to determine that the summer feeding grounds in the middle shelf of the Bering Sea are critical habitat for the Pacific population of the right whale.

C. The Proposed Critical Habitat Contains Features that are Essential to the Conservation of the Right Whale and Requires Special Management Considerations or Protection

In accordance with section 3(5)(A)(i) of the ESA and regulations at 50 CFR 424.12(b), areas that contain physical and biological features that are essential to the conservation of the right whale and may require special protection or management considerations are to be considered for critical habitat designation. The proposed critical habitat contains several features essential to the conservation of the Right Whale in the North Pacific, and these features require special protection in order to insure the survival and recovery of the species.

1. Space for population growth and normal behavior

The area proposed for critical habitat contains portions of the middle shelf that are currently occupied by the right whale, as well as areas that contain identical features but have not had any recent signs of occupation. However, this additional area needs to be designated as critical habitat to allow for population recovery and normal behavior fluctuations. As the right whale population rises in the Pacific, additional feeding grounds will be necessary to maintain the population growth. The proposed critical habitat designation will protect an area capable of maintaining and perpetuating the recovery of the species. Furthermore, the normal behavior of the right whale includes following its prey species as the distribution of the prey changes over the ocean. The proposed critical habitat provides additional habitat where prey densities may peak, allowing the right whales to move into effective foraging habitat when the currently favored spot becomes less suitable.

2. Food, feeding areas, and clean water

The proposed habitat contains a known feeding site for the right whales. The entire middle shelf domain that is proposed as critical habitat can maintain similar densities of food, and is all potential feeding area. Seismic exploration, shipping vessels, exploratory drilling operations, and aerial surveys, among other things, could disrupt right whale feeding behavior. Right whale food sources may also be dispersed by these activities, especially vessel traffic. Right whale prey species may be adversely affected by oil spills and other contamination caused by oil and gas development in the area. The high risk level to and the importance of this feeding area to the right whale make it essential to the conservation of the species and requires special

management considerations or protection.

The right whale, like all marine mammals, needs clean water in which to live. The right whale's proposed critical habitat in the middle shelf of the Bering Sea is increasingly imperiled by wastewater discharges from oil and chemical facilities, and the inevitable oil spills that accompany vessel traffic and oil and gas development.

4. Sites for breeding

Little is known about right whale reproduction, and the calving grounds for the right whale in the Pacific remain a mystery. However, Goddard and Rough have observed right whales engaging in sexual activity in 1996 within the proposed critical habitat.[96] This is an indication that the middle shelf of the Bering Sea may serve as a courtship area, in addition to its documented role as a feeding ground for the right whale.

Because so little is known about right whale reproduction and rearing of young, it is not possible to precisely identify the importance of the proposed critical habitat area for breeding and reproduction. However, since there has not been a documented sighting of a right whale calf this century, it is clear that the breeding and reproductive behavior of the right whale has been altered or disturbed by human causes. The only documented indication of any right whale courtship activity in the recent past has occurred within the proposed critical habitat area, and special management or protection mechanisms can help enhance the reproductive behavior in this area.

Reproductive success is also dependent upon feeding success. The proposed area is a documented feeding ground for whales. If the feeding ground were altered in a way that reduced its productivity and affected right whale feeding behavior, it is likely that the right whales would not be able to meet the energetic requirements necessary to successfully produce offspring.[97] Thus, the critical habitat designation will indirectly support the reproductive success of Pacific *E. glacialis*.

5. The proposed area is representative of the historic distribution of the right whale

Historically, right whales were seen throughout the Bering Sea. In particular, important summering grounds for the right whale included the Gulf of Alaska, the eastern Aleutian Islands, Sea of Okhotsk, Sea of Japan, and the southeast Bering Sea.[98] The proposed critical habitat is within the historic range of the right whale, but does not include all of it, or even those areas that were once considered the primary summer grounds of the whale, such as the Gulf of Alaska. This is in part due to the lack of sightings outside of the southeast Bering sea. It may be that the right whale has permanently shifted its preferred habitat away from these other areas. However, as recovery continues, it is likely that a larger portion of the historic range of the species will become occupied again. At that time, a further revision of the critical habitat designation will be required to reflect the recovery of the population in other U.S. jurisdictional waters.

[96] Goddard and Rugh, *supra* note 33, at 346.
[97] Kenney et al., *supra* note 43, at 2.
[98] Perry et al., *supra* note 2, at 9.

VI. PROCESSING OF THIS PETITION

This petition is submitted under the provisions of the ESA, 16 U.S.C. §§1531 et seq., 50 C.F.R. 424.14, and the APA, 5 U.S.C. §533. As a petition to revise critical habitat, NMFS is bound to process this petition within a predetermined time frame as defined by CFR 424.14(c) to the maximum extent practicable. The regulations require NMFS to make a finding within 90 days of receipt of this petition as to whether the petition presents substantial scientific information indicating that the revision may be warranted. The finding shall be promptly published in the Federal Register. 50 CFR 424.14(c)(1). Within 12 months of receiving this petition, NMFS is required to determine how it will proceed with the requested revision, and shall promptly publish notice of such intention in the Federal Register. 50 CFR 424.14(c)(3). The Center for Biological Diversity fully expects NMFS to comply with these mandatory deadlines.

SIGNATURE PAGE

This PETITION TO REVISE THE CRITICAL HABITAT DESIGNATION FOR THE NORTHERN RIGHT WHALE (EUBALAENA GLACIALIS) UNDER THE ENDANGERED SPECIES ACT is hereby submitted to the Secretary of Commerce.

Respectfully submitted this 4th day of October 2000.

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